TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

MULTI-CANISTER OVERPACK (MCO) INTERROGATION METHOD

Identification No.: RL-SNF10
Date: November 2000

Program: Spent Nuclear Fuel (SNF)
OPS Office/Site: Richland Operations Office/Hanford Site
PBS No.: RL-RS03
Waste Stream: SNF-02, Dry K Basins Fuel, Multi-Canister Overpacks (MCOs)
TSD Title: N/A
Operable Unit (if applicable): N/A
Waste Management Unit (if applicable): N/A
Facility: Canister Storage Building (CSB)

Priority Rating:

This entry addresses the "Accelerated Cleanup: Paths to Closure (ACPC)" Priority:

____ 1. Critical to the success of the ACPC
____ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
_X__ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Multi-Canister Overpack Interrogation Method.

Need/Opportunity Category: *Technology Need* -- There is no existing or currently identified technology capable of solving the site's problem (i.e., technology gap exists, no baseline approach has been identified).

Need Description: An apparatus to interrogate stainless steel fuel canisters which contain uranium metal fuel, residual water and corrosion products such as hydrogen is needed to measure hydrogen pressure, water content, etc.

Schedule Requirements:

Earliest Date Required: (1/2005)
Latest Date Required: (01/2007)

Repository may be able to accept fuel as early as 2007.

Problem Description: The Tri Party Agreement schedule requires the removal of spent nuclear fuel from the K Basins and its dry storage at the Canister Storage Building (CSB). The project baseline seals the fuel in welded canisters called multi-canister overpacks (MCOs) for interim storage. Technology is needed to ascertain the condition of MCOs after long-term storage and process the MCOs as necessary for acceptance at a permanent repository.

Potential Life-Cycle Cost Savings of Need (in $000s) and Cost Savings Explanation: Zero cost savings are currently projected. Benefits will assist in determining need for additional processing to meet repository waste acceptance criteria.

Benefit to the Project Baseline of Filling Need: Data obtained from the interrogation method will provide means for determining if the MCOs required further processing to meet repository waste acceptance criteria.

Relevant PBS Milestone: N/A

Functional Performance Requirements: A method for interrogating the MCOs will be needed to demonstrate that the waste packages meet the repository acceptance criteria. The results of the interrogation may additionally require that the MCOs be processed (e.g., vented of internal pressure and back-filled) prior to shipment. Baseline technologies for the requisite handling, interrogating, and processing have not been selected. Repository acceptance requirements have not been finalized.

Work Breakdown Structure (WBS) No.:	***TIP No.:***
1.03.02.01.10	S20-10-010

Justification For Need:

Technical: Technology to interrogate the MCOs will provide data required by the repository for waste acceptance (i.e., pressure buildup [hydrogen] from water, corrosion processes, etc.). The data will also determine if further processing of the MCOs will be required to meet the repository waste acceptance criteria.

Regulatory: Interrogation of the MCOs will serve as a basis for determination of compliance with repository waste acceptance criteria.

Environmental Safety & Health: Technology that demonstrates the MCOs are acceptable at the national geologic repository without further processing would reduce the health, and safety risks to personnel and the environment.

Cultural/Stakeholder Concerns: The expectation of the stakeholders is that the Spent Nuclear Fuel will be sent to an off-site repository for long-term storage.

Other: None identified.

Current Baseline Technology: N/A

End-User: Canister Storage Building.

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